Health Care-Associated Infection: Literature Review

Anisha Coleman

Lakeview College of Nursing

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Professor Travis Whisman

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Hand hygiene is the most common way to prevent the spread and transmission of infections. However, healthcare-associated infections (HAIs) are infections individuals obtain when receiving care for another condition and are significant causes of illness and death in healthcare facilities, hospitals, surgical centers, and long-term care facilities (OIDP, 2021). Most common HAIs are central line-associated bloodstream infections (CLABSI), catheter-associated urinary tract infections (CAUTI), MRSA bloodstream infections, and clostridioides difficile infections (CDiff) (OIDP, 2024). The purpose of this literature review is to show how handwashing can result in a decrease in healthcare associated infections.

Impact of direct hand hygiene observations and feedback on hand hygiene compliance among nurses and doctors in medical and surgical wards: and eight-year observational study

One quantitative study that examines hand hygiene compliance to prevent the spread of infection and healthcare-associated infections (HAIs) among nurses and doctors in a tertiary hospital in Finland (Ojanpera et al., 2022). The objective of their study was to determine if observations and feedback influences hand hygiene compliance and whether these actions impact HAIs incidence (Ojanpera et al., 2022). A longitudinal observational study was performed observing thirteen medical and surgical units using logistic regression analysis and Poisson regression model (Ojanpera et al., 2022). Logistic regression analysis is a model that predicts the probability of a specific, discrete or categorical outcome (Lee, 2025). Poisson regression is a statistical model used to count variables and analyze the number of occurrences of an event

within a specific interval or period (Statistics How To, 2025). Results from this study found that hand hygiene rates increased while HAIs incidences decreased from direct observations and feedback during routine patient care on the surgical and medical units (Ojanpera et al., 2022).

Key Points

This research was a longitudinal observational study took place at Oulu University Hospital, a tertiary care center in Northern Finland (Ojanpera et al., 2022). Data included observation of duration of hand washing, occurrences of hand washing, job descriptions of person observed and the ward (Ojanpera et al., 2022). This study was conducted during weekday day shifts (Ojanpera et al., 2022). Logistic regression analysis was used to calculate odd ratios for hand hygiene compliance where hand disinfections were the dependent variable, also represented as the p-value (Ojanpera et al., 2022). The independent variable was the type of "my five moments" from The World Health Organization, profession type, and type of unit (Ojanpera et al., 2022). The statistical programs used were statistical analysis system (SAS) and statistical package for the social sciences (SPSS) (Ojanpera et al., 2022). Among nurses, there were 8496 events observed on the medical unit and 16,118 events on the surgical unit, while amongst the doctors, there were 1950 events on the medical unit and 4446 on the surgical unit (Ojanpera et al., 2022).

The length of hand washing is recommended to be 20 to 30 seconds and require 1.6 to 3.2mL of soap or alcohol-based hand rub (Ojanpera et al., 2022). The World Health Organization (WHO) recommend that monitoring hand hygiene is a critical measure for preventing healthcare associated infections (HAIs) (Ojanpera et al., 2022). WHO's "my five moments" for hand hygiene are 1) before touching a patient, 2) before a clean or aseptic procedure, 3) after body fluid exposure risk, 4) after touching a patient, and 5) after touching a patient surrounding

(Ojanpera et al., 2022). Lack of time and forgetfulness are barriers to hand hygiene for nurses while high workload and activities of cross contamination are casual factors to hand hygiene in doctors (Ojanpera et al., 2022). Moment four was the most observed among nurses on both units while moment 1 was the most observed event for doctors on the surgical ward (Ojanpera et al., 2022).

A quarterly incident of HAIs was observed through district patient population resulting in three types of HAI: pneumonia, urinary tract infections, and general infections (Ojanpera et al., 2022). The medical unit increased their hand hygiene rate by 10.8% and the surgical units increased by 32.8% (Ojanpera et al., 2022). Hand washing rate decreased to 18 seconds on the medical unit and 19 seconds in the surgical unit (Ojanpera et al., 2022). Although, moment 2 (before aseptic/clean procedures) rates are usually low, moment 5 (after touching patient surroundings) was significantly better with hand hygiene compliance on both wards (Ojanpera et al., 2022). Nurses increased their hand hygiene compliance by 17.8% from 2013 to 2020 and 65.8% among doctors (Ojanpera et al., 2022). Since we cannot determine how hand hygiene impacts the types of HAIs, observations and feedback on hand hygiene led to an overall improvement in the units and between nurses and doctors.

Assumptions

The author's main assumption in this study is that observation and feedback will decrease events of HAIs through hand washing compliances (Ojanpera et al., 2022). In previous systematic review, the authors noted that a decrease in HAIs incidence occurs when hand hygiene compliance exceeds 60% (Ojanpera et al., 2022). It can be assumed that the authors believe improvement in hand hygiene compliance can be accomplished by continuous direct

observation and feedback, having a significant positive change in hand hygiene among nurses and doctors (Ojanpera et al., 2022).

Deficit/Conclusion

The authors of this study have a valid line of reasoning with claims supporting its evidence. The logic is consistent and there are no gaps. Minimal biased opinions are perceived due to day shift observations. Mostly nurses were observed with doctors representing only one-fifth of the total observation (Ojanpera et al., 2022). It is important that hand hygiene is practiced at a high percentage to decrease the risk of HAIs. If nursing fails to accept this line of reasoning, the educational resources provided would be useless. Education, feedback, interventions, reminders, and administrative support should be provided to all healthcare team members to improve hand hygiene compliance (Ojanpera et al., 2022). Aseptic measures and practices should be carried out to minize risk of infections.

THIS IS WHERE PART 1 ENDS! THE NEXT SECTION (SECOND ARTICLE TITLE HERE) IS WHERE PART 2 BEGINS!

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Assumptions

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Conclusion

Write a conclusion here in your overall paper. Follow the MEAL paragraph formatting and use Grammarly.com. Provide a summary/conclusion of the analysis of all three articles. Discuss how the information can improve:

- Patient outcomes
- Nursing practice
- Evidence-based practice/Quality Improvement efforts
- Healthcare as a whole

References

Lee, F. (2025, May 14). *What is logistic regression*? International Business Machines Corporation (IBM). https://www.ibm.com/think/topics/logistic-regression

Office of Infectious Disease and HIV/AIDS Policy. (2021, September 2). *Health Care-Associated Infections*. U.S. Department of Health and Human Services. https://www.hhs.gov/oidp/topics/health-care-associated-infections/index.html

Office of Infectious Disease and HIV/AIDS Policy. (2024, December 6). *National HAI targets & metrics*. U.S. Department of Health and Human Services. https://www.hhs.gov/oidp/topics/health-care-associated-infections/targets-metrics/index.html

Ojanpera, H., Ohtonen, P., Kanstem O., Syrjala, H. (2022, April 8). *Impact of direct hand hygiene observations and feedback on hand hygiene compliance among nurses and doctors in medical and surgical wards: and eight-year observational study*. Elsevier. https://www.sciencedirect.com/science/article/pii/S0195670122001955

Statistics How To. (2025). *Poisson regression/ regression of counts: Definition*. Statistics How To. https://www.statisticshowto.com/poisson-regression/